CONTENTS

Foreword vii

HIGH RESOLUTION ELECTRON MICROSCOPY

Structure, chemistry and diffusion bonding of metal/ceramic interfaces
K. Burger, W. Mader and M. Rühle 1
Microstructural changes in (Mg) PSZ during aging at 1000 °C
K.H. Westmacott, A. Thorel, D. Broussaud and J.Y. Laval 15
HREM of coherent precipitates in ZrO_2 alloys
A.H. Heuer, V. Lanteri and R. Chaim 27
High-resolution electron microscopy of interfaces and surfaces
J.M. Gibson, M.L. McDonald, J.L. Batstone and J.M. Phillips 35
A high-resolution electron microscopy investigation of some low-angle and twin boundary structures
W. Krakow and D.A. Smith 47
Atomic resolution microscopy of NiO grain boundaries
K.L. Merkle and D.J. Smith 57
Dynamic edge and surface processes in terbium oxide
Z.C. Kang, L. Eyring and D.J. Smith 71
Rubidium chromium fluoride structures of the hexagonal tungsten bronze type
R. Sharma and L. Eyring 81

ANALYTICAL ELECTRON MICROSCOPY

Local bonding and electronic structure obtained from electron energy loss scattering
P.E. Batson, K.L. Kavanagh, C.Y. Wong and J.M. Woodall 89
Parallel detection electron spectrometer using quadrupole lenses
O.L. Krivanek, C.C. Ahn and R.B. Keeney 103
CCD-based parallel detection system for electron energy-loss spectroscopy and imaging
M.G. Strauss, I. Naday, I.S. Sherman and N.J. Zaluzec 117
EELS as a probe of d-band occupancy in magnetic alloys
T.I. Morrison, M.B. Brodsky and N.J. Zaluzec 125
Analytical electron microscopy of a sulfur-poisoned palladium catalyst with a dedicated STEM
C.E. Lyman, H.G. Stenger, Jr. and J.R. Michael 129
High resolution electron microscopy and microanalysis of carbon-supported hydrodesulfurization catalysts
L.F. Allard, J.S. Brinen, F.P. Daly and A.J. Garratt-Reed 135

Characterization of model Pt–Rh automotive exhaust control catalysts by EXAFS, STEM and XRD
H.J. Robota, R.W. Broach, J.W.A. Sachtler and S.A. Bradley 149
STEM studies of ruthenium dispersed on a pillared clay Fischer–Tropsch catalyst
E.G. Rightor and T.J. Pinnavaia 159
An experimental X-ray detector efficiency function determined using pure submicron spheres: an approach to quantification
T.F. Kelly 175
Uncertainty analysis for low P : B XEDS measurements – variation of aluminum in silicon nitride
D. Bonnell and E. Bischoff 191

DIFFRACTION AND ADVANCED TOPICS

Influence of segregation on the diffraction effects from homophase interfaces
J.M. Vitek 197
SCREM of MgO crystal surface structure and in-situ-deposited metallic particles on MgO surface
H.-J. Ou and J.M. Cowley 207
Experimental studies of atomic step contrast in reflection electron microscopy (REM)
T. Hsu and L.-M. Peng 217
Determining the 3D lattice parameters of nanometer-sized single crystals from images
P. Fraundorf 225
Weak-beam α-fringe electron microscopy of interface structures
K. Miyazawa and Y. Ishida 231
Solidification structure and primary Al–Fe–Si particles in direct-chilled-cast aluminium alloys
P. Skjerpe, J. Gjønnes and Y. Langsrud 239
Microstructural analysis of in-situ Cu–Nb composite wires
A.R. Pelton, F.C. Laabs, W.A. Spitzig and C.C. Cheng 251
Precipitation and phase stability of solid Kr in cavities after room-temperature implantation of Al
R.C. Birtcher and W. Jäger 267
EDS investigation of solute–precipitate interactions in ferritic steels under irradiation
T. Muroga, N. Yoshida and K. Kitajima 281
Scale structures during oxidation and sulphidation of nickel and a nickel–chromium alloy
K. Gjønnes and A. Andersen 289
Electron microscopy study of sputtered NbN films
H.L. Ho, R.T. Kampwirth, K.E. Gray, D.W. Capone II, L.S. Chumbley and M. Meshii 297
Characterization of ion implanted silicon: correlation of optical measurements with microstructural observations
W.T. Donlon, J.V. James, J.L. Bomback, C.R. Huo and C.C. Wang 305
Temperature variation of indentation damage in (100) GaAs single crystals
S.W. Lee, C. Scott and S. Danyluk 319

Author index 325
Subject index 327

U·M·I

VOLUME 21, ISSUES 3-4 HAVE BEEN PHOTOGRAPHED IN VOLUME AND ISSUE SEQUENCE.